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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,894	04/24/2006	Bruce L. Elliott	14726N/060792	9033

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STITES & HARBISON PLLC
401 COMMERCE STREET
SUITE 800
NASHVILLE, TN 37219

EXAMINER	
AFTERGUT, JEFF H	
ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/576,894	ELLIOTT, BRUCE L.	
	Examiner	Art Unit	
	/Jeff H. Aftergut/	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9-5-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 6-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Burgess (US 2003/0051795).

Burgess taught that it was known at the time the invention was made to apply resin impregnated filaments upon a mandrel wherein the resin impregnated filaments are held in place which included the application of a yarn onto the elongate mandrel overlying the resin impregnated filaments in order to maintain the resin impregnated filaments in position and under tension. The applicant is specifically referred to Figures 3A and 3B. With respect to the use of impregnated filaments the reference suggested that the filaments employed were preimpregnated with resin. Additionally, the reference expressly stated that the filaments could be applied in the form of a yarn. The reference additionally suggested that multiple layers of filaments were applied upon the mandrel. Regarding the use of a ring which is coaxial to and encircles the mandrel with the yarn positioned on a spool which is mounted to the ring where the spool orbits about the mandrel to apply the yarn circumferentially to the mandrel, the applicant is referred to Figures 1, 2, and 4-6 along with the description of the same in the patent. The reference taught that more than one ring was provided , see Figure 2 wherein an outer ring and an inner ring are provided. The reference additionally suggested that the spool was fixed to

a ring with a bracket 31 and that the ring was rotated about the mandrel. The reference additionally suggested that the inner ring provided a guide path for the filaments which when through the outer and inner rings to be applied. Additionally, the reference taught that the inner ring guide was supported with arms which connected the inner ring to the outer ring. It should also be noted that the mandrel was recited as translating and moving axially past the depositing ring during fiber application as a fiber pass was provided.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Philpot et al.

The reference to Burgess is discussed in detail above in paragraph 2 and applicant is referred to the same for a complete discussion of the reference. The reference did not include a pin assembly on the mandrel during the winding operation. However those skilled in the art at the time the invention was made would have known at the time thereof to employ associate a pin ring assembly and/or a slotted groove assembly on a mandrel in order to ensure the filaments remain in their proper location on the mandrel in the winding operation as taught by Philpot. The use of an additional means to ensure that the filaments retained their proper position on the mandrel (and in

particular at the end of the mandrel where the turn around of the filaments would have occurred in the winding operation) would have been obvious to those skilled in the art and the use of the mechanism of Philpot would have ensure proper placement of the material on the mandrel. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the pin ring/slotted groove ring assemblies of Philpot on the mandrel in order to ensure that during the winding operation when the filaments reached the end of the mandrel one would have been able to properly retain the filaments in their desired position when winding on a discrete mandrel in accordance with Burgess.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 4 further taken with Hamilton.

While the references as set forth above clearly expressed that one skilled in the art would have provided a pin strip and associated the same with a mandrel in order to allow the filaments to be disposed in proper position on the mandrel. To further show that those skilled in the art would have incorporated a pin assembly or a plurality of slotted grooves on the mandrel to ensure proper placement of the filaments upon the mandrel, the reference to Hamilton is cited. At column 1, lines 20-32, Hamilton clearly expressed that a plurality of grooves would have been an art recognized alternative to a plurality of peg like projections (pins) to allow the filaments to turn at the ends of the winding operation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a plurality of grooves (slotted) at the end of the mandrel where the fiber turn around was to take place to ensure proper placement of

the fibers as taught by Hamilton in the process of making a filament wound structure as taught above in paragraph 4.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of either one of Drachenberg or Brussee.

While the reference to Burgess suggested the overall operation, it failed to teach that those skilled in the art at the time the invention was made would have incorporated an additional winding at the end to ensure the ability to turn the fiber in the opposite direction on the mandrel and retain the fiber in its proper position on the end of the mandrel. However, processing wherein additional fiber was provided at the end of a winding pass in order to retain the fiber in place therein as well as facilitate the fiber turn around was known as taught by either one of Drachenberg or Brussee. Either one of Drachenberg or Brussee suggested that at the end of a fiber pass where the fibers were to be turned and applied to the mandrel in the opposite direction that one skilled in the art would have applied a fiber winding about the end of the fibers of the pass to retain the same prior to the return to the winding operation in the opposite direction on the mandrel or form. More specifically, applicant is referred to fiber 8 which was used to retain fiber 6 between passes on the form in Drachenberg and fiber 48 which was used to retain fiber 35 between passes on the mandrel or form in Brussee. As it world have allowed for changeover in fiber pass from one end of the mandrel to the other, it would have been obvious tone of ordinary skill in the art at the time the invention was made to utilize a fiber winding at the end of a winding pass to allow for the turn around of the fiber winding operation as suggested by either one of Drachenberg or Brussee in the

winding operation as taught by Burgess for retaining fiber in its desired position on the form.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of either one of Baker et al or Smith.

While the reference to Burgess taught the overall operation including the axial movement of the mandrel and the rotation of the ring to apply the fiber to the mandrel in the desired orientation (note that there must be relative rotary movement between the mandrel and the ring either by rotation of the ring or rotation of the mandrel to allow for placement of the fiber material therein), the reference to Burgess failed to teach that the mandrel was rotated in the placement of the fiber material thereon. However, those skilled in the art would have understood that relative movement between the mandrel and the ring would have been provided not only by rotation of the ring where an application ring was provided, but also by rotation of the mandrel for application of material thereto. More specifically each one of Baker et al or Smith suggested that those skilled in the art would have applied fiber material upon a mandrel where the fiber was applied from a ring disposed about the mandrel wherein not only did the mandrel translate along its axis but it also rotated in order to control the angle of the fiber applied to the mandrel. Applicant is referred to column 2, lines 29-35 of Smith and column 2, lines 28-40 of Baker et al. As it would have been viewed as an alternative means for forming the relative motion between the fiber applying ring and the mandrel to control the angle of application, it would have been obvious to one of ordinary skill in the art at the time the invention was made to rotate the mandrel and leave the application ring in

a non-rotated state as suggested by either one of Baker et al or Smith as an alternative to rotation of the application ring as taught by Burgess when applying fiber to a mandrel to make a composite part.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of either one of McClean or Farris.

The reference to Burgess is discussed at length above and applicant is referred to the same for a complete discussion of the reference. The reference failed to teach that the artisan would have provided movement for a fiber applying ring relative to a stationary mandrel. It should be noted that Burgess clearly taught the relative movement between the mandrel and the application ring by translating the mandrel relative to the stationary ring. However, as evidenced by either one of McClean or Farris one skilled in the art would have understood that the relative movement between an applicator ring and a mandrel could not only be provided by translation of the mandrel but also by reciprocation of the application ring where the mandrel was not translated past the ring as taught by either one of McClean or Farris. As such would have been viewed as a functional equivalent alternate expedient for the provision of the relative motion necessary to apply the filamentary material at an angle to the mandrel, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the movement and reciprocation of the application ring in Burgess instead of the translation of the mandrel therein as such was an art recognized technique for providing relative movement as suggested by McClean or Farris.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of McLain.

McLain taught that it was known at the time the invention was made to employ resin impregnated filament which were applied to the mandrel in the manufacture of the composite article, however there is no indication that the impregnation operation included the use of an impregnating box (an impregnation bath) during the impregnation operation to coat the fibers (preimpregnate) prior to winding. However, in the application of fibers to a mandrel with an application ring disposed about the mandrel, it was known to coat the fibers with resin in a resin bath prior to their introduction on the mandrel as taught by McLain. More specifically, applicant is referred to Figures 6, 8, and 10 for example where the fibers were introduced into a resin bath and coated with the resin prior to application to the mandrel with the ring type of applicator (guide). As Burgess suggested that the material was impregnated in the winding operation and McLain provided a suitable means to impregnate the fibers, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the resin bath of McLain in the process of making the filament wound article in the process of Burgess in order to provide impregnated fibers in the operation.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burgess in view of Japanese Patent 55-128431.

Burgess is cited above and applicant is referred to the same for a complete discussion of the reference. The reference failed to teach that those skilled in the art would have included rollers which pressed the filaments against the mandrel during

application of the same to the mandrel for forming the wound article. However, those skilled in the art at the time the invention was made would have known to incorporate rollers which pressed the fibers against the mandrel wherein the use of rollers not only ensured adequate placement of the fibers to the mandrel but it also would have ensured that any excess resin was removed from the resin impregnated fibers by squeezing the resin out from between the mandrel and the rollers as taught by Japanese Patent '431. Applicant is referred to Figure 8, rollers 16 which pressed the resin impregnated fibers against the mandrel during application. It should be noted that after application with the rollers additional fiber material was applied with an applicator ring 17. As it would have provided one with a means to ensure that the proper amount of resin was left with the fibers which were applied to the mandrel, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the pressing rollers of Japanese Patent 55-128431 in order to provide proper placement and removal of excess resin when applying filaments to a mandrel in Burgess for making a composite fiber reinforced wound article.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:30-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff H. Aftergut/
Primary Examiner
Art Unit 1791

JHA
March 28, 2008